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5 February 1968

MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report, January 30-February 3, 1968 - Los Angeles

1. On 31 January 1968 visited Hycon Company, Monrovia, California, and discussed the following items with [redacted] 25X1A 25X1A

A. Window Status, U-2R

B Camera

1st set due 5 February 1968
2nd set due 15 February 1968
3rd set due 29 February 1968
2 sets per month thereafter

Glass is 1/10 wave flatness across 8" aperture. Windows are larger than U-2C windows to accommodate proposed f/8 36" Baker lens.

H Camera

1st set due 30 March 1968
2nd set due 30 May 1968

1/10 wave flatness over 14" aperture.
23 seconds wedge on two side pieces to correct for pressure differential inside/outside.

Hycon wants first H hatch for 2 days to confirm stress free glass installation.

B. Flight test program

The H camera flight test is to be accomplished with two objectives in mind. Number one is to check out and confirm compatibility between the camera and the new vehicle. Number two is to establish parameters which will improve the performance of the camera in both the R and the C vehicle. The second objective may be accomplished

in the C vehicle except for a final confirmation flight in the R vehicle with all operational systems installed. B camera compatibility flights will be conducted in the R vehicle. Three flights will be required in which half the flight is programmed to duplicate insofar as possible a typical operational mission and half will be scheduled to obtain maximum resolution of 3 bar ground targets. All modes of operation will be exercised.

C. Flight Instrumentation Program

Hycon is preparing a revised flight instrumentation program that will provide a base line Q bay environment profile against which changes in the vehicle can be measured in terms of their effect on the bay environment. The proposal should be received by February 12.

D. Methods of improving resolution on all systems were discussed with particular emphasis on obliquity angles of more than 30°. Larger apertures and longer focal lengths are pretty well limited by the weight of the glass required. Faster shutter speeds are limited by the light sensitivity of the film and the target reflectance. Filters like wratten 25 or 29 offer a faint hope but no drastic improvement in resolution, only an increase in contrast. A substitution of 3404 or other high resolution emulsion for 3400 will be investigated as well as changes in processing. The effects of maritime tropical air mass on resolution at high angles of obliquity in a recent study completed at Wright Field, are dramatically illustrated in a chart that shows a loss of 60% in resolution between vertical and 70 degrees without applying scale factor losses.

2. Attended U-2R technical meeting at Lockheed with [redacted] 25X1A Mr. Johnson pointed out that glass deliveries for Tracker, B camera, H and Delta III were pacing items for compatibility flight tests of sensor systems. Action required is a concentrated effort to improve glass delivery schedule and a survey of current assets for

possible temporary substitutes.

3. A discussion with [redacted] and [redacted] 25X1A 25X1A
brought out that Mike strongly favored the hatch mounted installation of the rotating optical bar camera, as used in the test flight series in the USAF U2-A, over a Q Bay supported installation, that I had decided upon after conferences with [redacted] of Itek and [redacted] 25X1A
at Lockheed. The rationale for this position follows:

a. The additional weight of camera and film on the extended range version of the camera brings the structural integrity of the hatch and its latching provisions into a marginal condition.

b. Preflight operation of the camera in its installed position is more convenient in the bay mounted version where the last action is putting on the hatch cover.

c. Positioning of the camera with respect to the vehicle is more positive and more repeatable in a bay mounted installation than a hatch mounted installation.

d. The vibration characteristics of the hatch cover are less predictable than the hard mounting points in the bay used by the other sensor systems.

e. Less ground support equipment will be required for the bay mounted installation.

f. Each time you want to get into the bay to check a circuit breaker or connector, the whole camera has to come out along with the hatch cover. 25X1A

Further discussions on this matter were held with [redacted] 25X1A
and [redacted] at North Base on 2 February. [redacted] feeling 25X1A
is that the hatch mounted version will reduce the access time around the vehicle when preparing for a mission. I can't assess the validity of this point, but I do feel that a bay mounted installation will improve resolution and reliability.

[redacted] 25X1A
Sensor Systems Division
Special Activities

25X1A

SSD/R&D/OSA, [redacted] (5 Feb 68)
Distribution:
#1 - D/R&D/OSA
#2 - SSD/R&D/OSA
#3 - SSD/R&D Chrono
#4 - D/M/OSA
#5 - IDEA/O/OSA
#6 - RB/OSA